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SOVIET DEFENSE TRENDS

A Staff Study

Prepared For The Use Of The

SUBCOMMITTEE ON INTERNATIONAL TRADE,
FINANCE, AND SECURITY ECONOMICS

Of The

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

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SOVIET DEFENSE TRENDS

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SUMMARY

This study is an attempt to explain the latest conclusions of the intelligence community about the trends in Soviet defense costs and to put them in perspective. The sources relied upon are indicated at the end of the study.

The Central Intelligence Agency reported in early 1983 that the trend in Soviet defense costs measured in dollar equivalents or rubles were different from that previously reported. The growth rate of Soviet defense costs had substantially slowed down. The defense Intelligence Agency agrees with the CIA's dollar cost etimates, but comes to a different conclusion when using its own ruble cost methodology.

The study shows where the two agencies agree and differ and goes on to speculate about the possible causes of the slower growth rate.

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The highlights of the study are:

1. The CIA concludes that the costs of Soviet defense grew at a rate of about 2 percent in real terms during the five-year period 1976-81, compared to a growth rate of 4-5 percent during the previous 10 years.

2. Most of the slowdown took place in procurement, which leveled off during the most recent five-year period. In the past, the rapid growth of procurement was the driving force behind the growth of total defense.

3. The most likely explanation for the slowdown in the growth rate of defense is that problems in the economy, such as transportation bottlenecks, inadequate supplies of steel and energy, and inability to assimilate new technology, had harmful effects on defense production.

4. As Soviet GNP and defense, during the past five years, grew at about the same rate, the CIA concludes that the share of the economy devoted to defense -- the military burden -- did not change during the decade.

5. While the DIA agrees with the CIA's dollar cost estimates, its own current ruble price methodology indicates there was no slowdown in total Soviet defense spending. The DIA finds that Soviet

defense increased by 6-7 percent in nominal terms during the 1970's and that defense procurement growth slowed somewhat from 9-11 percent in the first half of the decade to 6-9 percent in the second half. The DIA also concludes that the Soviet military burden increased from 13-14 percent in 1970 to 14-16 percent in 1981.

6. The DIA's estimates for Soviet defense and GNP have limited utility for policymakers because they are not adjusted for inflation, are based on a definition of Soviet defense that is different from the definition of U.S. defense, and contain wide margins of error. The DIA considers its methodology classified, making it difficult for outsiders to evaluate its measures.

1. Background

The Soviet Union does not disclose the details of its defense budget. Instead, it publishes a single figure in its annual financial report which purports to be its defense expenditures. This figure is known to vastly understate the true size of the Soviet military program. In the absence of complete and reliable official defense budgetary data, the U.S. intelligence community estimates Soviet defense costs through a variety of methods. The most well known are those of the Central Intelligence Agency.

The CIA estimates Soviet defense costs in constant U.S. dollars and constant rubles through what it calls a direct, building-block approach. To estimate defense costs in dollars, information about the physical components and activities of the Soviet defense forces is collected and assigned monetary values in U.S. dollars and the figures are adjusted for estimated inflation. The totals derived indicate how much it would cost in dollars at prevailing U.S. prices and wages to produce and man the Soviet defense program in the United States in a given year. To estimate what Moscow spends in rubles, the CIA combines what it knows about actual ruble costs with conversions into rubles of some of the dollar costs.

More specifically, CIA's dollar cost estimates are developed through a complex procedure involving the identification and listing of Soviet forces and their support apparatuses, divided into more than 1,000 components, including individual classes of surface ships, ground force divisions, and air regiments. Appropriate U.S. prices and wage rates are applied to the

detailed estimates of physical resources. The results are aggregated by military mission and resource category.

One of the principal uses of the dollar cost estimates is to compare Soviet total defense costs with U.S. total defense spending. The methodology also allows analyses and comparisons at lower levels of aggregation. For example, the trends in the costs of Soviet ground forces or air regiments can be viewed separately from total defense costs. Soviet allocations for strategic forces or any other category can be compared with similar U.S. allocations. Allocations for geographical areas, such as Europe and the border with China, can be examined.

In addition, the building-block approach is used to estimate the ruble costs of Soviet defense. This is done by applying ruble prices to the detailed physical description of Soviet forces and activities.

For the ruble costs, most of the Soviet defense program is estimated directly in rubles. The rest is estimated in dollars and converted to rubles with ruble-dollar ratios. Dollar costs are estimated directly for the entire Soviet defense program except research and development which is calculated in rubles and converted to dollars. Again, all building-block estimates are made in constant prices -- that is, adjusted for inflation.

The dollar and ruble estimates are used differently. As stated above, the dollar estimates make it possible to compare U.S. and Soviet defense activities in terms of flows of resources allocated to defense. The ruble estimates provide insights into

how Soviet leaders view defense and the burden of defense on the economy.

Supplementary to these direct methods for measuring Soviet defense, there are various indirect methods. These involve analyses of official Soviet statistics, without regard to the physical components of defense forces. They are used primarily by the Defense Intelligence Agency and are discussed later in this paper.

2. Recent Trends: Slowdown in the Growth Rates

CIA's estimates are revised annually to incorporate new information and refinements in the estimating techniques. Previous reports showed Soviet defense costs increasing at a rate that has averaged 3 percent in dollars and 4-5 percent in rubles annually since 1960. However, in its most recent report, the agency found that the trend was different from that previously reported.

According to the CIA, while the dollar costs of Soviet defense activities grew during the early to mid-1970's at an average annual rate of 4 percent, growth continued at a rate of less than 2 percent in the five-year period 1977-81. Soviet spending in rubles exhibits a similar pattern. During 1977-81 ruble spending increased by about 2 percent annually.

With respect to the composition of Soviet defense activities, the slowdown in the growth rate is due to the leveling off in investment costs. Military procurement which had been expanding faster than the rate of total defense scarcely grew in 1977-81.

It has been known that Soviet defense activities grew at below average rates in 1977-78. The expectation was that growth would be higher in 1979-81 due to the usual procurement cycle. The new estimates of production, however, were lower than what had been projected for the period. Because of the reduced production levels, earlier estimates for defense activities in 1980 and 1981 were revised downward, lowering the growth rate for the five-year period.

The figures for weapons production seem to support the conclusion that there has been little growth in military procurement costs. A listing of 25 classes of weapons produced for Soviet forces, excluding transfers to foreign governments, during 1977-81, shows the level of production declined in 13 classes, remained about the same in five classes, and increased in seven classes. Table 1 shows this breakdown.

TABLE 1

MAJOR SOVIET ITEMS OF NEWLY PRODUCED
EQUIPMENT FOR SOVIET FORCES
(Soviet Military Production Without Exports)

	1977	1978	1979	1980	1981
Ground force materiel:					
Tanks	2,200	2,000	2,000	2,500	1,400
Other armored vehicles1/	3,700	4,400	4,500	4,800	4,000
SP field artillery	900	400	100	50	150
Towed field artillery	1,000	1,100	1,200	1,000	1,400
Multiple rocket launchers	300	200	200	300	400
SP AA artillery	200	200	100	100	200
Infantry weapons (thousands)2/	349	450	450	398	400
Missiles:					
ICBM's	300	200	200	200	200
IRBM's	100	100	100	100	100
SRBM's	200	250	300	300	300
SLCM's	600	600	700	700	750
SLBM's	600	600	700	700	750
ASM's	1,500	1,500	1,500	1,500	1,500
SAM's1/ 2/	50,000	50,000	50,000	50,000	53,500
ATGM's1/ 2/	35,000	35,000	40,000	50,000	60,000
Aircraft:					
Bombers	30	30	30	30	30
Fighters/fighter bombers	750	950	700	750	750
Transports	350	325	350	350	325
Trainers	10	5	0	0	0
Helicopters	850	600	600	650	650
Communications/ utility	100	100	100	100	25
Naval ships:					
Submarines	10	12	11	12	9
Major combatants	10	10	9	9	7
Minor combatants	27	26	27	33	25
Auxiliaries	6	4	7	8	3

1/ Includes between 600 and 800 vehicles imported yearly from Eastern Europe.
2/ This represents total estimated Soviet production and it is not known what percentage was exported to other Warsaw Pact countries, or Third World countries. It is not believed that more than 2 to 5 percent were exported.

Source: Defense Intelligence Agency

In theory, the cost savings from the reduced quantities could be more than offset by cost increases due to more advanced technology. Doubtlessly, the unit costs of Soviet weapons are rising. But the CIA's building-block approach involves analyzing the costs of each category of military equipment, and the conclusion that procurement costs grew little during this period implies that unit cost increases did not totally eliminate the cost effects of reduced procurement. It would be hard to argue from the defense production data that procurement costs are rising rapidly.

3. U.S. and Soviet Defense Costs in Dollars

Since 1960, U.S. defense outlays total about $3.5 trillion compared with estimated dollar costs for Soviet defense activities of about $3.7 trillion. In the same period, the dollar cost growth rate for Soviet defense averaged about 3.5 percent annually, with no sharp peaks or valleys. U.S. defense outlays surged upwards in the early 1960's and during the Vietnam war and declined in real terms in 1962-64 and during the first half of the 1970's. There was virtually no growth in U.S. outlays in this period.

The pattern in the past 10 years was vastly different. In contrast with Soviet defense costs whose growth rate was slower in the later than in the earlier part of the decade, U.S. outlays declined in 1972-75 but have since grown at an increasing rate.

The contrast is most striking in the area of procurement. U.S. defense procurement outlays declined in 1972-76; Soviet

investment costs rose. But while Soviet procurement leveled off in the 1976-81 period, U.S. outlays averaged 7 percent growth.

Measured in dollars, Soviet defense activities were about 20 percent greater than U.S. outlays in 1972, were 55 percent greater in 1976, and in 1981 were 45 percent greater.

4. Limitations of the Estimates

Dollar cost estimates do not measure actual Soviet defense spending or manufacturing efficiences in military industries. Obviously, the Soviets spend rubles, not dollars. Nor do the dollar estimates indicate how the Soviets perceive defense spending. To assess the effects of defense spending on the economy, it is necessary to estimate Soviet spending in rubles.

Dollar cost estimates of Soviet defense activities contain an upward bias. They tend to exaggerate somewhat the true size of the Soviet defense effort relative to the United States. This distortion, called the index number problem, is inherent in all international comparisons of economic activities when measurements are made in only one country's currency. A similar distortion would occur if a Soviet analyst estimated U.S. defense costs in rubles and compared them with Soviet ruble outlays. Such an estimate would exaggerate U.S. defense costs relative to the Soviet Union. To offset the distortion, complementary estimates can be made, measuring costs in the currencies of both countries.

The CIA attempts to make complementary comparisons by estimating U.S. defense costs in rubles and comparing them with

Soviet ruble outlays. As mentioned above, when measured in dollars, Soviet defense costs in 1981 were 45 percent greater than U.S. outlays; when measured in rubles, Soviet costs were only 25 percent greater than U.S. defense costs in rubles. The true ratio of Soviet to U.S. spending is somewhere between 25 and 45 percent, assuming the estimates are correct to begin with.

The CIA believes its dollar costs and ruble estimates of Soviet defense contain a margin of error of plus or minus 10 percent for any year in the past decade. But it has far less confidence in the estimates of U.S. defense costs in rubles. One reason is that, while estimates of what it would cost in dollars to produce Soviet equipment can be obtained from U.S. defense firms, the CIA cannot get estimates from Soviet defense firms of what it would cost in rubles to produce U.S. equipment. The agency's ruble estimates (for the United States) are also far less detailed than its Soviet dollar estimates. Thus there may be a greater margin of error in the ruble comparisons.

The CIA's estimates have been criticized by some analysts for overstating the size of Soviet defense and by others for understating it. A few of the critcisms may be mentioned. Those who believe the dollar cost estimates exaggerate Soviet costs point to the CIA's failure to fully offset the index number problem by not making equally detailed ruble estimates of U.S. defense. It is also argued that valuing Soviet personnel costs at prevailing U.S. wage rates magnifies their relative costs. For example, if only U.S. military personnel pay increases the relative size of total Soviet defense costs also increases in dollar terms because the Soviet Union has more military personnel

than the United States. Usually, however, both personnel and equipment costs rise annually.

Those who believe the costs of Soviet defense activities are being understated argue that the CIA undercounts Soviet weapons and that the CIA's approach does not fully adjust for advances in technology. But these arguments have not been substantiated.

An important limitation in the use of the estimates is that defense costs cannot be equated with capabilities; comparisons of military costs or spending are not necessarily indicative of relative military capabilities. The fact that one country spends more or less than another does not mean it is stronger or weaker. In the jargon of economists, cost valuations measure the resources or inputs that are allocated for military forces, and not the effectiveness or output of those forces. The CIA regularly qualifies its findings by setting forth this limitation in its reports and testimony to Congress.

For purposes of military analysis it is sometimes useful to think in terms of flows and stocks. Flows of resources are produced by spending and they influence the stocks or inventories of equipment and other assets. Spending increases usually add to stocks, but not always. Also, the quality and usefulness of the stocks are effected by many factors other than how much is spent for them. It would be incorrect to conclude that military capabilities are automatically increased whenever the rate of spending is increased, or that capabilities are automatically reduced whenever the rate of spending is reduced or slowed down.

The flow of resources is an important but not the only factor to consider.

5. The DIA's Ruble Estimates

The DIA employs the direct dollar cost approach but also uses indirect methods to estimate ruble costs. The CIA uses indirect methods only as a rough check on its building-block ruble estimates, not as a primary estimating technique. The DIA has greater confidence in the indirect methods.

The indirect methods are based in part on official Soviet statistics. In one approach, the DIA estimates Soviet defense spending in current rubles -- that is, unadjusted for inflation -- as a way to duplicate the kind of information it believes Soviet decision-makers consider. Based on the hypothesis that defense has absorbed a constant share of the state budget since 1970, the DIA concludes that Soviet military spending in current rubles rose from 1970 to 1981 at a "nominal" rate -- again, unadjusted for inflation -- of 6 to 7 percent annually, and that Soviet GNP grew by 5 percent in nominal terms during this period. The DIA believes the rate of growth of procurement has slowed somewhat, from 9-11 percent in 1970 to 1975 to about 6-9 percent in 1975 to 1980.

Little has been disclosed about the DIA's methodology, which remains classified, so it is difficult to evaluate the results as to margin of error or level of confidence. The key assumption is that the defense portion of the Soviet state budget has remained constant. The agency states that its current ruble expenditure

estimate is based on several statements made by knowledgeable sources concerning the level of Soviet defense spending during the 1960's and 1970's. According to those sources, the share of the state budget devoted to defense was 31-34 percent. DIA believes about the same share was taken by defense in the later years as in the early 1970's. The agency asserts that analysis of Soviet statistical data shows no civilian component that could account for the rapid growth of the budget during the decade.

To test this hypothesis, one would need to know how the state budget is defined, the precise portion spent for defense, and whether the defense portion corresponds with the U.S. definition of defense. The DIA states that it uses the Soviet concept of defense, which it concedes is probably broader than the U.S. concept and may include activities such as the civilian space program, military construction troops, and the internal security forces of the KGB and MVD.

If the Soviet state budget, as viewed by Soviet decision-makers, was changed in scope during the decade, adjustments would have to be made to any ratio based on the assumption that the defense share was constant. Similarly, if Soviet defense activities not included in the U.S. concept of defense were expanding at a more rapid rate than other activities, the results of the DIA's measure could be misleading.

The fact that DIA's current ruble estimates are not adjusted for inflation means it is not possible to know whether real outlays are rising or falling. A rate of 7 percent nominal growth could be 2 percent or 4 percent, or any other rate,

depending upon inflation. If inflation was faster in defense than in the rest of the economy, the real growth of defense could have been the same or slower than the growth of GNP.

The DIA believes inflation averaged about 2-3 percent in the USSR during the 1970's. It acknowledges the possibility that inflation was higher in the defense sector than the rest of the economy.

The agency also allows that the current ruble methodology cannot accurately measure annual changes in total Soviet military spending, due to its inherent range of error. The methodology, DIA believes, is most useful in analysis of long-range periods or in analysis of a single year.

Another indirect method attempts to measure military procurement through analysis of Soviet statistics for the machinery and metalworking industry. Most defense production takes place in this industry and some officials believe it is possible to detect the trend by separating nondefense production from the published totals. What remains, the residual, is assumed to be military hardware. One DIA spokesman has assigned a margin of error to this method's absolute measure of Soviet military procurement of plus or minus one-third. While the level of confidence in the estimate of the absolute level of military procurement is low, intelligence analysts place a much higher level of confidence in the residual methodology's estimate of Soviet military procurement trends.

Finally, the indirect methodologies which rely on Soviet statistics, lack the kind of detail and the weapon-by-weapon cost

analysis contained in the CIA's estimates. Under the indirect approach, only the level of total ruble spending or total procurement is derived, and these figures cannot be broken down by military mission, resource category, or geographical area. For example, cost estimates for the weapons listed in Table 1 cannot be made with the indirect approach.

6. CIA and DIA Agreement and Differences

The CIA and DIA develop their own estimates of Soviet defense production independently of one another. When they apply CIA's dollar cost methodology to their production estimates, the same trends emerge. In other words, the two agencies are in general agreement about the dollar costs of Soviet defense derived through the building-block methodology.

They disagree over the relative merits of the CIA's constant dollar cost estimates and the DIA's current ruble estimates. The CIA prefers its own constant price dollar and ruble estimates because they are based on the hard evidence of the physical components and activities of the Soviet defense program. The DIA prefers its own current price ruble estimates because they provide insights into how the Soviets themselves look at defense cost trends.

From the CIA's perspective, correct current ruble estimates would be the best evidence of Soviet defense costs, but it is not possible to obtain current ruble estimates in which one can have high confidence. The Soviets go to great lengths to conceal what they spend for defense and the CIA doubts that defense spending

can be derived through manipulation of official Soviet statistics.

Both agencies are aware that the dollar cost estimates do not reflect Soviet perceptions of their defense activities. The DIA apparently believes the advantages of using its current ruble estimates outweigh whatever uncertainty surrounds them.

The two agencies conclude that the annual growth of Soviet defense costs, measured in constant dollars, slowed to about 2 percent in the latter part of the 1970's. This rate of growth was about the same as the expansion of the economy in that period, when inflation is taken into account. Under the CIA's direct constant ruble cost approach, the share of Soviet GNP allocated to defense -- the military burden -- did not increase during the decade. The CIA estimates that the military burden, 13-14 percent of GNP, has been unchanged since 1970.

The DIA's current ruble estimates present a different picture. It estimates that ruble spending rose at a nominal rate of 6 to 7 percent annually from 1970 to 1981, and that the Soviet GNP increased during the same period at a nominal rate of about 5 percent annually. Under this approach, the military burden increased during the decade. The DIA estimates that the military burden rose from 13-14 percent in 1970 to 14-16 percent in 1981.

The different conclusions about Soviet defense trends derived through the building-block and indirect methodologies cannot be reconciled. If the CIA is correct, the growth rate of Soviet total defense and procurement slowed significantly and the military burden has not increased. If the DIA is correct, the

growth r procurement slowed somewhat, and the military burden has increased.

7. Possible Causes of the Slowdown in the Growth Rate

It has been noted that the leveling off in defense procurement costs accounts for the slowdown in the growth rate of Soviet total defense. What accounts for the leveling off in procurement? One can only speculate, keeping in mind the limitations in the methodologies for estimating defense costs and the problem of correctly assessing what is going on in the rest of the Soviet economy. Soviet leaders may or may not have decreed that the growth rate of total defense spending or defense procurement should be trimmed beginning in 1977, or that resources are being transferred from the defense sector to other sectors of the economy. Barring new revelations that would indicate explicit policy decisions, the question is, what factors might have brought about or contributed to the slower growth rate?

One possibility is that economic constraints have influenced allocations for defense. Some of the same factors that caused the slowdown in the Soviet economy may have held down defense growth. A comparison of Soviet GNP, defense, and military procurement growth rates in the first and second halves of the 1972-81 period suggests a positive correlation. Table 2 compares Soviet GNP and defense growth rates.

TABLE 2

SOVIET GNP AND DEFENSE GROWTH RATES, IN REAL TERMS

1975-1981

(PERCENT CHANGES)

	1966-1976	1976-1981
GNP Growth	3.9	2.2
Total Defense Activities	4.5*	2.0*

* Approximate estimate.

Both Soviet GNP and defense growth averaged nearly 4 percent annually in the first part of the period, 1972-1976. In the second half of the period, 1977-1981, GNP growth fell to 2.2 percent and defense growth averaged about 2 percent. The effects of procurement growth on the total defense growth rate can be seen in the fact that in the past the high growth rate of procurement has been the driving force behind the growth of total defense.

The period of the slowdown in defense procurement growth also coincides with the slowdown of total Soviet industrial production and of the machinery and metalworking industry. Again, we do not know whether Soviet officials made a decision to slow the rate of growth in this industry, although Soviet planners reduced the objectives for the growth of total industrial production. The fact that investment in machinery and metalworking increased in absolute terms and as a share of total industrial investment in 1976-1980, compared with 1971-1975 suggests there was no decision to reduce the growth of the machinery industry. Employment in this industry also grew faster than in most other industrial sectors.

Nevertheless, growth of machinery and metalworking output fell in the latter half of the 1970's, from a rate of 7.9 percent in 1971-1975 to 5.4 percent in 1976-1980, and the growth of productivity in this industry also declined. Among the factors that influenced this fall off were the failure of the steel industry to supply the kinds and qualities of steel needed by the machinery industries, inadequate supplies of electric power, oil, and gas, and bottlenecks in rail transportation which held up

supplies of raw materials and deliveries of final products among machinery producers.

A related problem that may have slowed defense production concerns the inability of Soviet defense firms to adopt new military technology. Soviet literature is filled with criticism of the inattention to research and obsolescence of equipment in industrial production. Much of the criticism has been concentrated on the machinery industry because of the deficiency of Soviet machine tools, the inferiority of Soviet-made programmed control devices, the underutilization of advanced equipment due partly to the lack of skilled workers, and the inadequate servicing of new equipment. According to a Soviet estimate, during 1976-1979, no more than 1 percent of the Soviet machinery industry's production equipment was modernized. In addition, the Soviets have experienced difficulties in absorbing the transfer of Western technology. It is likely that these problems contributed in some measure to a slowdown in production rates for military equipment.

There are other possible explanations of the growth slowdown. One concerns Soviet trade with the West and the effects of U.S. export restrictions. But as overall Soviet trade with the West rose in the late 1970's, the possibility that trade acted as a constraint on industrial production can be ruled out. In the second half of the decade all categories of imports increased with manufactured goods taking the lion's share.

Soviet imports of equipment and technology may not have had their intended effect in furthering modernization and growth.

The growth of Western imports averaged 17 percent annually during 1976-1980, a rate that was slower than the increase in the previous five years in part because of the inability to absorb Western technology into the industrial sector. U.S. exports to the Soviet Union declined after 1976 but most of those exports were grain and other nonmanufactured goods. The U.S. share of manufactured imports from the industralized West reached a peak of only 7.7 percent in 1976; its share of high technology imports was 12.4 percent in that year. By 1980, Soviet imports from the industrialized West had climbed to $19.8 billion, up from $12.9 billion in 1976. Of the 1980 amount $3.9 billion was foodstuffs (about 25 percent of which came from the U.S.). U.S. exports of manufactured goods and advanced technology have not been large enough to have influenced Soviet industrial production one way or the other.

The Soviet Union stepped up its exports of military equipment in the late 1970's and has become the world's largest arms exporter. During 1977-81, it delivered $35 billion worth of military equipment to foreign governments. It can be argued that these transfers could have been reduced in order to build up Soviet stocks and to that extent were at least an implicit diversion of resources from the Soviet military.

The possibility that the 1977-1981 period was part of a lengthened procurement cycle seems unlikely but cannot be ruled out. Soviet defense growth rates have fluctuated in the past as production of new generations of weapons were phased in. Typically, the slower part of the cycle lasted 2-3 years and were

offset by several years of above average growth. A five-year period of below average growth is atypical.

The DIA believes that required growth in the nondefense sectors of the economy could mean slightly smaller increases in defense, in order for defense growth to continue to increase in the long teerm. This conclusion suggests that the slowdown in the defense growth rate may continue for the next several years. Obviously, a decision by the new leadership under Andropov to acelerate procurement could reverse the trend if such a decision was implemented.

Whether arms control constraints contributed to the slowdown is beyond the scope of this paper.

8. Conclusions

It is perhaps inevitable but unfortunate that consumers of Soviet defense cost estimates frequently misuse them. One problem is the tendency of equating the cost estimates with capabilities, misreading Soviet size for strength. Such reasoning confuses resource allocations with military power and has led some persons to unfairly criticize the estimates because they do not coincide with preconceptions about relative American and Soviet strength. Persons of all persuasions tend to misuse the estimates, those who believe the intelligence community understates Soviet defense and those who believe it overstates it, as well as those who accept the estimates at face value.

The tendency of taking the estimates too literally is the most pervasive problem. In view of the margins of error, the low

levels of confidence in some of the techniques, and the annual revisions, the estimates should be considered as ranges rather than data points. The trends over time are more important than the year-to-year changes. The CIA rates the margin of error in the dollar cost estimates as plus or minus 10 percent, and says it has far less confidence in portions of the dollar estimates, such as R&D, and in its estimates of the ruble costs of U.S. defense. A DIA spokesman estimated that the margin of error in the indirect method for measuring Soviet military procurement was plus or minus one-third.

It is inappropriate to read the estimates with the certainty that can be attached to the U.S. budget document. In general, far too much military and political importance has been given to the estimates of Soviet defense costs. Their principal value is economic, not military. They measure stocks and flows of resources rather than capabilities and effectiveness. They can be useful for assessing trends, understanding the interaction of the defense sector with the rest of the economy, and making rough comparisons of the sizes of Soviet and American forces. Estimates of what the Soviets actually spend in rubles will always be suspect so long as Moscow maintains its policy of secrecy.

Having said this, it must be noted that the intelligence estimates themselves are adding confusion to an already complex subject. The differences between the dollar cost and ruble estimates are hard to follow and few in Congress understand the different uses of the different types of estimates. It is not possible for an outsider to resolve the questions raised by CIA's

constant dollar and constant ruble costs and DIA's current ruble estimates, or to reconcile the dissimilar results.

As DIA is in some sense challenging the significance of the dollar cost estimates, it would be useful for that agency to subject its methodology to outside review so that it may be evaluated. An exhaustive review of the CIA's methodology was recently conducted by an outside panel. Until more is known about DIA's methods for estimating Soviet defense spending in current rubles, members of Congress will be unable to judge the relative merits of the current ruble and constant dollar estimates. Such a review should also evaluate the relative merits of the different methodologies.

The latest CIA estimates are significant because they demonstrate a change in the trend of Soviet defense growth over a five-year period. The period is longer than previous cyclical fluctuations and could represent a medium or longer term phenomenom.

The importance of the trend should not be exaggerated. The Soviets have very large stocks of weapons and supplies and these inventories will continue to grow. The fact that costs are growing at a 2 percent annual rate rather than a 3-4 percent annual rate should be kept in perspective. The burden of defense on the Soviet economy will remain high, in the 14 percent range, although it may not increase if Soviet defense growth and GNP growth proceed at about the same rate. If Soviet GNP growth rises to 3 percent while defense growth remains at 2 percent, the defense burden could decline slightly.

A 2 percent growth rate means that Soviet defense activities are continuing to expand, although at a slower pace. Nonetheless, the slowdown in the growth rate has profound implications for our understanding of the Soviet economy and Soviet policy. For example, assumptions about trade-offs between defense, civilian investment, and consumption should be reexamined in light of the new evidence.

The reasons for the slowdown in the growth rate cannot be known with certainty. The Soviet leadership may not have planned the reduced rate, any more than they planned the slowdown in economic growth. It is likely -- but cannot be proved -- that the defense slowdown is the result of economic constraints. The same factors that led to the slowdown in industrial production probably contributed to the slowdown in defense production. These factors include inadequate deliveries of raw materials and supplies, transportation bottlenecks, energy constraints, shortages of skilled manpower, obsolete equipment, and problems in the production of advanced technology.

The amount of resources provided to the machinery industry in the form of investment and manpower indicates that defense still enjoys a very high priority. But the fact that the growth rate of defense production was allowed to decline suggests that the defense sector is not as insulated from the rest of the economy as has been believed by Western analysts. Soviet leaders may have been unwilling or felt unable to take drastic steps to prevent the slowdown. They apparently did not act to maintain the faster rates of military procurement at the expense of other sectors of the economy. Whether the leadership made an explicit

decision to stretch out military procurements cannot be known. Whether the present trend will continue into the 1980's remains to be seen.

Note About Sources

Much of this paper is based upon recent testimony before the Joint Economic Committee by spokesmen for the Central Intelligence Agency and Defense Intelligence Agency, Allocation of Resources in the Soviet Union and China - 1982, Part 8 (1983); the testimony before the Joint Economic Committee by Major General Schuyler Bissell, Deputy Director, DIA, Allocation of Resources in the Soviet Union and China - 1983 (June 28, 1983); and Soviet Military Economic Relations (1982), proceedings of a workshop, Joint Economic Committee. Three classified studies were reviewed: [redacted] STAT [redacted] STAT prepared by the Office of Soviet Analysis of the CIA; USSR: Military Expenditures (February 1983), prepared by the Defense Intelligence Agency; and The Defense Intelligence Agency and Central Intelligence Agency Ruble Estimates of Soviet Defense Expenditures (July 1983), prepared by the Defense Intelligence Agency. Soviet and U.S. Defense Activities, 1971-80: A Dollar Cost Comparison (1981) is an earlier unclassified study prepared by the National Foreign Assessment Center of the CIA.

For information about the Soviet GNP and industrial production performance see [redacted] STAT [redacted] STAT a study prepared for the Joint Economic Committee by the Directorate of Intelligence, CIA. Discussions by Soviet experts of problems in the Soviet machine-

tool industry may be found in S. A. Kheinman, "The Machinery Industry's Production Apparatus and the Machine Tool Industry," and A. G. Aganbegyan and others, "Around the Machine Tool," both translated into English in The Current Digest of the Soviet Press, Volume XXXIV, No. 18, June 2, 1983, pp. 5-9. For Soviet trade with the United States and West see Hedija H. Kravalis, "U.S.S.R.: An Assessment of U.S. and Western Trade Potential with the Soviet Union through 1985," in East-West Trade: The Prospects to 1985 (1982), a study prepared for the Joint Economic Committee.